Third Meeting of

FERN STUDENTS,

UNDER THE AUSPICES OF

THE LINNAEAN FERN CHAPTER.

St. Louis, December 30, 1903.

Program 9:00 A. M.:

1. Address of Welcome.
   PROF. W. J. S. BRYAN.
2. Reply for the Chapter.
   THE PRESIDING OFFICER.
3. The Occurence of Polypodium angustifolium ensifolium in Florida.
   GEO. E. MCCLURE.
4. Woodsia Ilvensis in Iowa.
   B. SHIMEK.
5. The Ferns of the Southwest.
   JAS. H. FERRISS.
6. (a) New or Rare Ferns from the Southwest.
   (b) Measurements of Variation in Equisetum, with one New Species.
   WILLARD N. CLUTE.
7. Another New Fern from Florida.
   JAS. H. FERRISS.
8. A Few Ferns From Natchez, Mis .
   B. SHIMEK.
9. The Species Conception Among the Ferns.
   WILLARD N. CLUTE.

NOTE:—A paper is expected from Alvah A. Eaton reporting several species of ferns new to the United States. The title of his paper was not received in time to be printed in this program. Numerous specimens of ferns will be on exhibition. At the close of the meeting a visit will be made to the library, herbarium and fern collections of the Missouri Botanical Garden.

To Fern Students.

On Wednesday, December 30, 1903, a meeting of Fern students, under the auspices of the Linnæan Fern Chapter, will be held at St. Louis, Mo. The meeting is in connection with the meetings of the American Association for the Advancement of Science. The occasion will be one which calls together a large number of representative scientists from all parts of the United States, and Fern students will thus have an opportunity not only of attending a meeting in their interests, but at the same time, of meeting and hearing botanists engaged in other lines of work. The Fern meeting will be held in Room 101 C of the High School Building, in which building the Botanical Society of America and the Botanical Section of the Association also meet.

For these meetings all railroads make a rate of a full fare going and one-third returning. Those who attend should ask for the regular *Convention Certificate* when buying their tickets and have them signed by the agent upon arriving at the High School.

No labor has been spared to make this meeting a success, and a pleasant and profitable session is anticipated. You are cordially invited to be present and to take part in the discussion of the papers presented.

N. L. T. Nelson,
A. Isabel Mulford,
G. M. Holferty,
W. L. Eikenberry,
Committee.

St. Louis, Dec. 22, 1903.

OEFICERS OF THE CHAPTER

FOR 1903

President—B. D. GILBERT, Clayville, N. Y.

Vice-President—GEO. E. DAVENPORT, Medford, Mass.

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LINNAEAN FERN BULLETIN

[VOL. I.]

(NOS. 1-4)

1893-1894

Mo. Bot. Garden,
1899.

THE

LINNAEAN : FERN : BULLETIN

NO. 1.

PUBLISHED BY THE

LINNAEAN FERN CHAPTER.

PRICE, FIVE CENTS.

BINGHAMTON, N. Y.,

1893

THE

LINNAEAN : FERN : BULLETIN

NO. 1.

PUBLISHED BY THE

LINNAEAN FERN CHAPTER.

PRICE, FIVE CENTS.

BINGHAMTON, N. Y.,

1893.

OFFICERS.

PRESIDENT,

WILLARD N. CLUTE, Binghamton, N. Y.

VICE-PRESIDENT,

HENRY C. COWLES, Oberlin, Ohio.

SECRETARY,

MRS. D. T. DERSHIMER, Squaretop, Wyoming Co., Pa.

TREASURER,

REUBEN M. STRONG, Oberlin, Ohio.

Every lover of ferns in America is cordially invited to join the Chapter. The dues are $1.00 yearly. Send for Constitution and list of members.

NOTES ON ASPIDIUM CRISTATUM.

This is one of our most interesting species, showing as it does the effects of light and surroundings upon its growth. In its natural habitat it is usually surrounded by a dense, low growth of other plants that, like itself, luxuriate in rich, damp woods and swamps. The fertile fronds grow almost vertically and are two or three times as long as the sterile ones which are simply ascending. The fertile fronds no doubt grow this way because it is more important for the preservation and increase of the species that the spore-bearing parts of the plant should receive every advantage due to better light, more air, etc., than that the sterile fronds should avail themselves of such advantages. It must also be noted that the sterile fronds are a shade lighter in color than the fertile ones on the same plant. But most interesting of all, the pinnae on the fertile fronds are turned so as to lie in a horizontal plane. Reading of this in a book gave me a clue to the following observations: I planted some of the ferns, in my yard in the city, near a board fence, so that they had only a northern exposure. This spring the ferns came up luxuriantly and bore many sori. The ferns nearest the fence had the upper surfaces of the pinnae turned almost directly

outwards so that the pinnae were nearly in the plane of the stipe. On the fronds farthest from the fence, yet not over a foot from it, the pinnae were nearly horizontal. One frond was somewhat inclined and the rachis was twisted, but all along the frond the pinnae were set at different angles so that the upper side faced the direction of the brightest light. The most interesting of all was a froud so growing that the back of the stipe faced outwards. Here the pinnae were inclined at an angle of forty-five degrees and *facing the back of the stipe*, or towards the brightest light. So plain is this evidence that it seems certain that the fern makes every effort to obtain the greatest possible amount of light upon the surface of the fertile fronds, these being the most important. The size and position of the fronds, their darker color, and, above all, the peculiarities of the pinnae go to prove this.—C. E. WATERS, Baltimore, Md.

FERN SPORES AND OTHER NOTES.

I believe I shall have to disagree with the report from Randolph, Vt. 1st—The Osmundas are the earliest of ferns to fruit, and if any one waits until late in the season to gather them he will lose them. I was out last week and they were almost too ripe to pick for pressing. 2nd—I consider *Asplenium Filix famina* an easy fern to tell, for the fruit is always *curved* and turns very dark. I do think the *Aspidium Booltii* and *Cristatum* are hard to know one from the other. I can tell them when they are

growing, but after they are pressed I find it very difficult. I hope some one will give some rule by which they may be distinguished

I have been much interested, this winter, watching the germination of fern spores. I got a piece of peat, put it in a glass plate, sprinkled some spores on it, then put a little water in the dish, being careful not to get any on the spores, and covered with a glass cover. (I used a glass butter dish). The peat is now covered with prothallium, and has the fern commencing to grow. I was almost discouraged they were so long in starting, but ferns are slow growers. I have been fortunate in having some fine *Botrychium Virginianums* in my garden this summer, and to see how leaf-like the fruit is when it first starts, and how it pushes up out of the ground instead of being circinate like the ferns.—MRS. M. L. STEVENS, Cambridge, Mass.

COLLECTING FERNS.

I began by studying the ferns which my sister had planted about the house, where it was so shaded nothing else would grow. After that I went out after other kinds, bringing them home to press and study them, using Gray's Botany to learn their names. Many kinds drooped so quickly that I began to carry my pressboards with me, and put them in as I gathered them. This of course was rather troublesome, but the pleasure was sufficient to pay for all that. I used two binders—boards 20 by 26 inches inclosing newspapers cut the same

size. I usually placed only one thickness of paper between the specimens when collecting, as that saved carrying so many papers, and when I reached home I put in three or four papers between, changing these every day (if I did my whole duty by them) until they were quite dry. To press these I covered them with heavy weights, which were often coal fossils or other stones from my cabinet, or else a dictionary or two. I gather and press root and all, as the plant is not complete without its root. There is as much individuality about the root of a fern as of the froud. I have planted more ferns about the house, and have much pleasure in seeing them grow and learning their habits.—A. MAY WALTER, Scranton, Pa.

BOOKS ON FERNS.

I have met with but two works on ferns and fern allies that seem well suited for the use of our members. Of these two, Prof. L. M. Underwood's "Our Native Ferns and their Allies" should be in the possession of all. It is a small cloth-bound 12 mo. volume of 134 pages, published by the Leader Pub. Co., Bloomington, Ill., from whom it may be obtained either directly by mail or through booksdealers. The price of the work is but a little over a dollar—I think $1.15—and perhaps a reduction can be obtained for members of the Chapter if enough wish to procure copies. The following synopsis of the contents may help to give an idea of the book. Chap. 1. Haunts, Habits and Distri-

bution of Ferns. II. Organography of the Growing Fern. III. Fructification in Ferns. IV. Germination of Fern Spores. V. Fern Structure. VI. The Fern Allies. VII. Classification and Nomenclature of Ferns and their Allies. VIII. How to Study the Pteridophyta. IX. Literature of the Pteridophyta.

Following the above chapters is a synoptical descripton of nearly all our species of ferns and fern-allies, and a glossary of terms. Concerning the character of the book nothing more need be said than mention of the author's name

Those members who may wish to transplant ferns to their homes and study them in cultivation will find Prof. John Robinson's "Ferns in Their Homes and Ours" a valuable and interesting companion. It is published by Cassino & Co., Boston, as the first number of the American Natural History Series, 178 pages, 12 mo., cloth. The price of the book I believe is $1.50. Following are the subjects of a few of the 19 chapters contained in the work: I. The Life of a Fern. III. Distribution and Nomenclature of Ferns. V. How to collect Ferns for Cultivation. X. Ferns in the Living-Room. XI. Special Ways of growing Ferns. XV. Other Cryptogams in Cultivation. XVIII. Fern-Pests.—GEO. G. HINSDALE, Burlington, Vt.

[In connection with the above may also be recommended "A Fern Book for Everybody," by M. C. Cooke. It costs about 50 cents and is published by Frederick Warne & Co., New York. This is a work on British ferns and will be found very handy for comparison It contains 124 pages, 12 colored plates, and many illustrations in the text.]

A CORRECTION.

I wish to get as complete a collection as possible, and will be glad to exchange with other members of the Chapter.

In Prof. Underwood's book, "Our Native Ferns and Their Allies," on page 115. division "B," he says: "Fronds mostly bipinnate; indusia convex, *without marginal glands*," and on the following page he deseribes *A. spinulosum*, var *intermedium* as having marginal glands, which it does have in abundance. I discovered the error by re-examination of a specimen I had taken to be *A. spinulosum*. Is anybody trying to propagate ferns from the spores, and if so, how are they doing it? What methods do they employ to study the prothallus.—CHAS. L. WILLIAMS, Glens Falls, N. Y.

PRESSING AND MOUNTING FERNS.

My method of pressing is not "improved," but has been so far quite successful. I have used only sheets of newspaper in various quantities, as best seemed to suit the size and thickness of specimens, changing the sheets every day for three or four days, till the moisture is well absorbed, and then less frequently. Instead of weights I have used pieces of thin board held in place by clamps. (Whisper it not in scientific circles, but these clamps belong lawfully to my quilting frames). I have mounted my ferns in a large-sized scrap-book. It answers the purpose very well, as its pages are

broad and ample and the ferns are always in readiness to exhibit to interested friends.—MRS. A. D. DEAN, Scranton, Pa.

TRAVELLING FERNS.

Among the fern lover's most delightful experiences is always numbered his first sight of the curious little walking-fern. The ordinary observer, used to our common ferns, would never think of classing the long, tapering, entire fronds of this species with the others, but the botanist is always on the lookout for it. Its rarity, too, adds to the charm of finding it, for the plant rather prefers calcareous rocks and is not to be found in every locality. On damp, shaded limestone-rocks, however, it is fairly common, often covering the slopes of mossy ledges. Like most ferns it bears numerous spores, but the plant does not depend on spores, alone, for its propagation. The slender tips of the fronds bend over, touch the ground, take root, and the walking fern has taken another step and also produced a new plant. In consequence of this fact the walking fern is justly celebrated; but it is not the only fern that seems to have a suspicion that spores cannot always be depended upon, although other ways of getting on in the world have been adopted. The process of producing ferns from the spores is a long and tedious one, and several ferns have found a quicker way. That lusty giant, the ostrich fern (*Onoclea struthiopteris*), sends out long subterranean stolons that come up at some distance from the

parent plant and produce a new fern to continue the race. Still another method has been adopted by the bladder fern (*Cystopteris bulbifera*). Instead of either rooting fronds, or stolons (which may be considered only another form of rooting frond), this fern bears small bulbets on the under side of the pinnae. These finally drop to the ground and a new fern is the result. That the bladder fern's method is capable of being improved upon is shown by an exotic fern rather common in cultivation. This has gone a step farther and produces a row of small ferns on the rachis of each frond. In the course of time the fronds become prostrate, and each row of ferns is then ready to set up in business for themselves. There is another class of ferns that "multiply by division." This is a division, not of the crown of fronds, but of the underground root-stock or rhizome. All these are great travellers, but not after the manner of the walking fern. A good example of this class is the brake or bracken (*Pteris aquilina* whose slender rhizome dodges under roots and stones to send up a new fern, perhaps six feet away. Here and there the rhizome branches and the new plants spring up in all directions. In much the same way the sensitive fern (*Onoclea sensibilis*) progresses, except that it grows slower and the rootstock is near the surface. The branching rhizome of the common polypody (*Polypodium vulgare*) creeps along on the surface and, as befits a fern whose fronds survive the winter, is clothed with brownish scales. Shirley Hibberd writes in the "Fern Garden" concerning this fern, "You may cut or pull to pieces this tuft

almost *ad lib.*, provided each separate portion has its own roots reserved to it." Each piece will form a new fern. The common maiden-hair (*Adiantum pedatum*) grows in the same way. Plant a single frond with its bit of rootstock in the spring, and before summer has passed it will have increased to a dozen or more. It is generally true that those plants that produce a circle of fronds from a central crown do not move about; the wanderers are, for the most part, those species that send down roots, push the rhizome onward, and send up fronds at intervals throughout the summer. There are others, however, like the cinnamon ferns (*Osmunda*) that produce a crown of fronds in spring and then remain quiet all summer. The next year the crown is produced beyond the old one, and so in time the fern travels some distance. Of all our native ferns these have the largest **rhizomes.** They creep along just underground, and are strongly anchored to the soil by a profusion of strong, black roots. It is no easy task to remove a fine specimen—a pick and shovel are almost necessities.—WILLARD N. CLUTE, Binghamton, N. Y.

NOTES.

Extra copies of this BULLETIN can be had by members upon application.

Please do not forget the October reports. It is hoped every member will send something.

Members will please note the change in the Secretary's address. Our former Secretary, as Mrs.

Dershimer, will continue to perform the duties of the office.

Those who have not paid their dues are requested to do so as soon as convenient, so that we may know whether to send them the Chapter reports or not. There is being much interest manifested in the Chapter at present, and these bulletins will appear frequently.

A preliminary report on the distribution of our native ferns, founded on the various fern lists sent in, has been forwarded to President Ballard and will shortly appear in *Popular Science News*. Several lists have been received, too late to be included, and will be used later.

The following new members have been admitted to the Chapter: Mrs. C. M. Wirick, 1434 Cleveland avenue, Burlington, Iowa; Chas. L. Williams, Glens Falls, N. Y; F. H. Plumb, Springfield, Mass. Several others have asked for information, and will doubtless soon be members of the Chapter.

Two reports have been circulating through the eastern half of the Chapter. One by Mr. Jas. A. Bates, on how to identify the ferns; the other entitled, "Distinguishing Characteristics of Closely Resembling Ferns," by Mr. C. E. Waters. In April a report of the Chapter's progress was started through the western half of the Chapter and has not been heard from since. Will the member who last received it please forward it at once.

THE

LINNAEAN : FERN : BULLETIN

NO. 2.

PUBLISHED BY THE

LINNAEAN FERN CHAPTER.

PRICE, THREE CENTS.

BINGHAMTON, N. Y.

1893

Ferns of Susquehanna, Pa.

My experience with ferns is of so recent a date that it is with considerable diffidence I attempt to write anything concerning them. But I am aware that if the interest in our Chapter is to be kept up, and its life prolonged, each member should add something to the general fern-fund by giving his or her experience, though they may have determined but a single species. An interesting report indeed could be made on aln ost any one of our common and well-known ferns by studying carefully its characteristic features and describing them minutely and clearly. It is a little less than a year ago that I became greatly interested in ferns. Anything like a systematic study of them is comparatively recent among botanists, generally. My childhood impressions concerning them were not of a character to make me become very familiar with them ; in fact I was told they were something to be shunned as being the harbor for snakes and other noxious reptiles. Among the common people they were called "snake brakes." These early impressions may have had something to do with my general indifference in regard to ferns, but likely it came from the idea they were something so complicated in their structure that no ordinary botanist had any business with them. With these ideas in my head, I find I have lost years of pleasurable profit.

But I am doing my best, now, to make up for lost time. I commenced toward the end of September last. It was late in the season to begin such a work; the fruiting season of most of the ferns was over, and the sporangia were either gone or had become confluent so that it was difficult to identify a species by its fruit characteristics. But I was determined to make a beginning and spent about one month in collecting before winter set in. In that time I had determined 10 genera, comprising 21 species and varieties, and all but two species were found within three miles of the borough of Susquehanna. I felt very proud of my month's work, considering the fact that up to the time I began I knew the name of but one fern in the list--the Maiden hair—and did not know the botanic name of that. There is a circumstance connected with my work that illustrates the fact that we do not often notice things until we become fully interested in them. Although I had walked time and time again over certain rocky places in this vicinity that were literally covered with the polypody, yet I did not know that one was to be found anywhere about here until I began last fall to look for them and found them abundant all about me. This spring and summer I have added nine species to my list, making in all 30 species and varieties. Of the Allies I have 4 *Equisetums*, 1 *Botrychium* and 4 *Lycopodiums*. I have all these preserved in a Herbarium and specimens of most of them growing in the grounds about my house. They have for the most part taken kindly to their artificial homes and sur-

roundings and have looked green and thifty throughout the season. It may be important to mention, that I have taken pains to observe the conditions in which I found the ferns growing and give them as nearly the same conditions as possible in their new homes. Many ferns, however, will grow, though not equally well, perhaps, in wet or dry soil; of this class are the *Onocleas*, *Osmundas* and some others. The *Cystopteris bulbifera* is abundant on the rocks of the "Cascade." Every one who has been over the Erie railroad knows of the celebrated "Cascade." This interesting fern, with its several little bulbets on the under side of the frond, grows there in every place it can get a foothold.—JAMES A. GRAVES, Susquehanna. Pa

Some Common Ferns.

The maiden hair (*Adiantum pedatum*) is one of our most beautiful ferns, found growing in bunches in rich woods. It is easily distinguished on account of the stipe being black and shining, and the midrib of the pinnules being very close to the lower edge, thus causing the pinnules to look like the halves of pinnules. The fruit dots or sori are marginal, the edge of the frond being reflexed so as to form an indusium. In the common brake (*Pteris aquilina*) the frond is divided into three spreading divisions each of which is twice pinnate. The sporangia are found in a continuous line around the margin of the pinnules, which, like the Maiden hair, are reflexed so as to form an indusium This is a common fern found growing on dry hillsides. The Beech Fern

(*Phegopteris Dryopteris*) is a delicate little plant. light green in color, and found common in rich woods. The frond is divided into three triangular. petioled divisions, each of which is once or twice pinnatifid. The fruit dots are round, on the back of the veinlet near the edge, and have no indusium. *Aspidium acrostichoides* is one of our commonest Shield ferns. It is simply pinnate and the stipe is thickly beset with rusty-looking chaff-like scales. The sori are placed on the backs of the upper pinnae only and each cluster has an indusium of its own. which is round and attached to the frond by its depressed centre. It is therefore peltate. This fern is also found plentifully in rich woods. In the Ostrich Fern (*Struthiopteris Germanica*) the fertile and sterile fronds are separate and altogether unlike each other. The sterile fronds grow to a large size in clusters with the smaller fertile fronds in the centre. The fertile frond, however, does not make its appearance until quite a time after the sterile frond. The fertile frond is simply pinnate and the margin of the pinnae are rolled backwards so as to from a tube for the sporangia. This is a very common and conspicuous fern in low wet grounds along streams. The frond of the Flowering Fern (*Osmunda regalis*) is composed of two parts, the lower part sterile and the upper fertile. The frond is very smooth thoughout. and the sporangia are naked and globular. It is found growing along streams and lake margins. The Cinnamon Fern (*Osmunda cinnamomea*) has two distinct fronds. one fertile and the other sterile. The sterile fronds

are rather long and grow in clusters with the fertile fronds in the centre. When young the sterile fronds are covered with a rusty, woolly material, but they become smooth when old. It is found in low wet places. —J. H. LEMON, Avonmore, Canada.

Forking Fronds.

Other occupations have kept me from paying very much attention to the ferns this Summer, but I have noticed some examples of forked fronds. A specimen of Asplenium Trichomanes has one frond forked into two equal branches at a half inch from the apex. Another frond divides into two, about an inch from the tip, and one of the divisions has two short branches growing out at the side, thus making four branches at the apex of the frond, each with its own rachis. I have also a specimen of Asplenium Montanum, which divides into two branches half an inch in length. Also a frond of Cystopteris fragilis which forks into two parts each about two inches long.

The most curious instance of forked fronds was shown in a fine large plant of Asplenium Filix-foemina. Of the eight or nine fronds on the plant, six were variously divided at the tip. Some had only three or four branches, while others had six or eight. At first sight the curious bunch at the tips of the fronds looked as if they might have been caused by insects, but an examination showed that such was not the case. Unfortunately I was simply out for a walk and did not carry my usual tin box, and on that account could not preserve the

specimens for a more detailed examination. The plant was growing by the roadside in a little patch of woods about eighteen miles from the city. I have been that way at least eight or nine times this Summer, but have not since seen any other such monstrosities. Let others take warning. Not only was I without the one-pound tin marshmallow box which I usually carry, but even my note book was at home, and I had no means of preserving these curious specimens for my herbarium.

Another instance. My first and only "find" of Woodwardia angustifolia was at a picnic in the woods near the shore of Chesapeake bay. I had no box this time, but a wiser than I, a member of the A. A., kindly lent me one he had brought with him. *Experimentia docet.*—C. E. WATERS, Baltimore, Md.

The Polypodies.

There are few ferns that can stand a lack of moisture better than the polypodies. Our common kind (*P. vulgare*) is usually found on the tops of dry rocks, and is seldom seen in the damp retreats of other ferns. But there is even a limit to the polypody's endurance and this was reached during the drouth of last August. I visited them some time before the rains began and found the fronds withered and curled up as if about dead. In this condition they remained till it rained and then each frond straightened up and appeared as strong as ever It would seem that the polypody is safe from competition on the dry rocks by thus being able to

withstand a drouth that would kill other ferns. In the Southern States there is another polypody (*P. incanum*) that possesses the ability to resist drouth in a much greater degree. This fern, which looks quite like our common one, is parasitic on the mossy trunks of trees. Unable to procure much moisture in such situations, it has nearly learned to do without it. During wet weather the fern is at its best ; but when dry weather comes the fronds simply roll up tightly and wait for the next shower. When taken from its surroundings the plant retains its vitality for a long time. If put in a dry place for weeks, it will at once revive when placed in water.—WILLARD N. CLUTE, Binghamton, N. Y.

Election of Officers.

As directed by the constitution the executive council has nominated two candidates for each office in the Chapter, as follows :

For President—C. E. Waters, Baltimore, Md.; Willard N. Clute, Binghamton, N. Y.

For Vice.President—Henry C. Cowles, Oberlin, Ohio ; Geo. G. Hinsdale, Burlington, Vt.

For Secretary—Mrs. T. D. Dershimer, Squaretop, Pa ; Chas. L. Williams, Glens Falls, N. Y.

For Treasurer—James A. Graves, Susquehanna, Pa.; R. M. Strong, Oberlin, Ohio.

At best these nominations can only be in the nature of a suggestion to the Chapter, and it should be understood that members are at liberty to vote for whom they please, whether regularly nominated or not. Mr. William P. Potter, of Norwich,

Conn., will act as Judge of Elections, and all votes should be sent to him not later than Nov. 15th. Only members in good standing can vote.

Notes.

Mrs. Emily Hitchcock Terry, Northampton, Mass., and Miss Elmira E. Noyes, Lewistown, Pa., have been admitted to the Chapter since the last Bulletin was issued.

The President has specimens of the climbing fern (*Lygodium palmatum*) which are offered in exchange for *Woodwardias*, *Pellaeas*, the rarer *Aspidiums*, or *Polypodium incanum*.

Reports come in very slowly, and nearly every one published, so far, has been taken from letters written by our members on other subjects. This accounts for the fragmentary character of some of them.

Every member is urged to send for a supply of Bulletin No. 1 and send them to their friends. It costs nothing to slip one of these into every letter written, and in so doing the Chapter is widely advertised and may gain new members The Bulletins are free to members.

Mr. E. P. Wentworth inquires: "Are there not 'points' which experienced fern-hunters can give beginners that will aid them in the examination of ferns?" Certainly there are, and these Bulletins are for the publication of just such points. It is hoped that the "experienced" and the inexperienced, too, for that matter, will aid us in this.

OFFICERS.

PRESIDENT,

WILLARD N. CLUTE, Binghamton, N. Y.

VICE-PRESIDENT,

HENRY C. COWLES, Oberlin, Ohio.

SECRETARY,

MRS. D. T. DERSHIMER, Squaretop, Wyoming Co., Pa.

TREASURER,

REUBEN M STRONG, Oberlin, Ohio.

Every lover of ferns in America is cordially invited to join the Chapter. The dues are $1.00 yearly. Send for Constitution and list of members.

THE LINNAEAN

Fern Bulletin.

NO. 3.

PRESIDENT—WILLARD N. CLUTE, Binghamton, N. Y.

VICE-PRESIDENT—HENRY C. COWLES, Oberlin, O.

SECRETARY—MRS. T D. DERSHIMER, Squaretop, Wyo. Co., Pa.

TREASURER — JAMES A. GRAVES, Susquehanna, Pa

Notes from Vermont.

I have been able to do but little with Ferns this summer. Have, however, found two new ones in our Randolph locality. The Polypodium Vulgare, and the Woodsia obtusa. The latter in some stages of growth very closely resembles large specimens of Cystopteris Fragilis. A friend has found in Vermont some fine specimens of the ophioglossum vulgatum, and another friend has at last found the Aspidium fragrans in or near its old locality on Mt. Mansfield. So I think we can now claim for Vermont all of the fifty-one New England species

and varieties unless it be var incisum of Aspidium acrostichoides, which is found just across the river in New Hampshire and should be on our side. Perhaps we are also justified in making another variety of Cystopteris fragilis.

I can appreciate the experience of Mr. Graves in the last BULLETIN. I have lost a good deal by means of the bugbears which even Botanists have put in the way of Fern Study. No part of Botany is more interesting, and no branch of it is in my opinion easier than this. Few plants are so apt to hide away out of sight as Ferns. Yet after you've hunted for them all over the mountain side you may find them close by the road from which you started. The little Woodsia glabella was reported up the cliffs of Willougby Mt. as far as one could climb in the ravine. But after climbing as high as I could, again and again, I found it not two rods from where I left my buggy. And what "red letter days" we fern hunters have. I don't think we are naturally any more enthusiastic than other people, but we can tell just when and where we found such and such little rock ferns years ago and now and then a finding of a rare one in an unexpected place does us more good than it would to find a purse of money, the owner would be sure to come for that.) My friends will probably testify that I am a quiet, sober, matter-of-fact sort of a character, but I am afraid I just stood still and shouted "Hurrah!" when I first saw the Woodwardia Virginica. The Professor had the old tradition of its whereabouts well learned years before, and with him I had

searched the region thoroughly. For some four or five years afterwards I had gone over the ground again every year in vain. Even wading out into the pond to search some little islands for it. But with a hint from Mr. Pringle, (the father of us all in Botanical collecting,) I tried again, and there it was in all its glory, alone on the water's edge. So stately that I saw it across the pond and knew at once it could be nothing but this, one of our most magnificent of Ferns, with its wonderful chains of spores, and its largest of all rhizomes (I think I must disagree with our president, in BULLETIN No. 1.) It was a proud day for me, when reporting to Mr. Pringle my success, he replied that he thought I was the third person to find it there.—JAMES A. BATES, Randolph, Vt.

Fern Localities.

Since it is time to send in my regular quarterly report, I will make a few corrections and additions to the list of ferns appearing in the September number of the Popular Science News. My list of ferns was made out for my locality, solely, although I have found many of the ferns in other states and also have some ferns not found near Baltimore. I have collected *Pellaea atropurpurea* at Birmingham, a small village about eighteen miles east of Altoona, Pa. The plants were on the face of a limestone cliff, in a very exposed situation. *Asplenium Trichomanes* grows at the same place as the above, but the plants found by me were on mossy rocks in the woods. *A. ruta-muraria* was also found by me

at the same place, on a limestone cliff. Some plants were growing scarcely five feet above the roadside. *A. montanum* grows at Rock Enon Springs, Va., on sandstone cliffs. I have one particulary fine specimen seven inches in length. It resembles *A. ruta-muraria* very closely. *Camptosorus rhizophyllus* also grows at Birmingham, Pa., on limestone. Near Baltimore I know of two localilies where plants are found on trap rock, but they are not nearly so large or so numerous as those on limestone.

Aspidium noveboracense is very common around Baltimore. I have also found it abundantly at both of the Pennsylvania localities and at Rock Enon and at Burke's Garden in Virginia.

Aspidium spinulosum intermedium is to be found at Swiftwater, Pa., and at Burke's Garden, Va.

A. spin. dilatatum grows at Birmingham and Swiftwater, Pa.

Cystopteris bulbifera grows at Birmingham, Pa., and at Burke's Garden, Va.

C. fragilis. I have recently found this for the first time. In my report it was stated that another of our local botanists had found it.

Woodsia Ilvensis grows near Calamity Rock on the west shore of Lake George, N. Y. *W. obtusa* at Birmingham, Pa.

Dicksonia pilosiuscula is one of the commonest ferns around Baltimore. It must have been through some oversight that I omitted it from my report, for there is certainly no lack of it. It also grows at Birmingham, Pa.—C. E. Waters, Baltimore, Md.

Forking Fronds.

Supplementary to the account of forked fronds in BULLETIN 2, I would note what seems a rather interesting occurence of forked fronds of the Bladder Fern (*Cystopteris bulbifera*). On August 10 while out collecting ferns I noticed that forked fronds of this species were quite common in a small ravine on the Winooski River near Burlington, a locality where this fern is very abundant. I have a specimen in my herbarium collected at the time with the divisions of the frond measuring ten inches, and I believe in none of the instances observed the divisions could have been less than five or six inches long. In exchanging specimens we should bear in mind that plants may be sent through the mails for one cent for each two ounces. Botanical specimens are classed as 4th class matter, and the rate of postage on 4th class matter is one cent an ounce; but an exception to this rule provides that "plants, of all kinds," may be sent for one cent for each two ounces. When mailing packages of specimens (if they are to be so sent) we should be careful to mark them either "Plants," "Herbarium Specimens," or "Ferns." —GEO. G. HINSDALE, Burlington, Vt.

Iowa Ferns.

I have not been able to do as much botanizing as I had hoped to do this past summer. This part of the country is fernless, for we have neither wood nor rocks very near us, and my vacation was not as long as I expected. I spent it at West Union, Ia.,

and found growing there quite abundantly, both Pellaeas, Cystopteris bulbifera and Woodsia obtusa upon the limestone rocks. I found growing in the same situation specimen of Cystopteris bulbifera, some eighteen to twenty inches long and others only two to four inches in length. The smaller differed slightly in shape from the longer fronds, and but for the presence of the bulblets, I should have thought they might be another variety. In the woods I found Phegopteris polypodioides and P. Dryopteris, the Onocleas and Osmundas, Botrychium Virginianum, Pteris aquilina, Aspidium Acrostichoides and A. Noveboracense. The meadows in wet portions abounded with A. thelyteris.—MARY E. CARR, Adrian, Minn.

A Fern-Book Offer.

The Secertary has received the following self-explanatory note from Prof. Underwood :

Dear Lady:—Noticing a recent statement in "Science" that you were secretary of an organization for the study of ferns, I will say that in case any of your correspondents wish to procure "Our Native Ferns and their Allies," 4th edition, recently issued by Holt, that I can furnish a limited number of copies at the reduced price of one dollar, post paid. In case classes of five or more are organized and will order five or more copies at one time for one address I can make the price somewhat less. I do not know the full scope of your organization, but assume it to be, in part at least, field and systematic study.—L. M. UNDERWOOD, Greencastle, Ind., Nov. 1893.

A Proposed Amendment.

That part of the constitution which makes all dues payable to the Secretary, has been found to be too cumbersome, and the following amendments, are proposed: To strike out the words "He shall receive and turn over to the Treasurer all monies paid into the Chapter" from Sec. 5, Art. 5, and to insert the words "Receive and" after the words "The Treasurer shall" in Sec. 6, Art. 5. Send all negative votes to the Secretary; silence will be taken for consent. **Voting ends Feb. 1.**

President's Report.

Fellow Members: When the Fern Chapter was spoken of, less than a year ago, some doubts of its being a success were entertained; but in the short time that it has been in existence enough has been accomplished to show that there is need of such an organization. Lovers of ferns have been glad to find a society devoted entirely to their interests and our membership has increased to nearly thirty. From the start the Chapter has been a working one and members have been active in corresponding and exchanging. None have asked for help in the study and failed to receive it. It is gratifying to note that, although many of our members had never studied ferns before, we have been able to publish three BULLETINS besides circulating other reports through the Chapter. In many ways the past season's work has been only preparatory. We are better acquainted with the ferns and with each other

and look forward to the coming season with interest and enthusiasm. It is hoped that the members will neglect no opportunity to enlarge the Chapter. With increased membership more and better BULLETINS can be published and better work done. The Chapter is greatly in need of members in the far west and south, but we should not rest till we have members representing every state in the Union. It is possible to do much for the Chapter by sending our BULLETINS (which are free to members) to those likely to be interested, and by inviting friends to join Let us double our membership this year! Our plan of study will be similar to that of last year, except that the Fern Allies will be added. As formerly, members will not be required to report though we are always glad when they do so. Reports are due on the first of every quarter, but may be sent in at any time. We enter the New Year with a cash balance in our treasury and every indication of a prosperous season —WILLARD N. CLUTE.

Treasurer's Report.

Owing to the fact that most of the dues were paid to the Secretary and immediately used in publishing the BULLETINS, the Treasurer's report is summed up as follows:

Dues received from 4 members. -	$4.00
Amount turned over to W. N. Clute, for BULLETIN, No. 3, - - -	$4.00

REUBEN M. STRONG, Treasurer.

Secretary's Report.

Owing to the illness of the Secretary her report for 1893 and the list of members in good standing does not appear in this issue. They will appear in the next BULLETIN. The money affairs of the Chapter, so far as known, are published below:

Received from 19 members,	- -	$19 00
To Constitution,	- - $3 50	
" BULLETIN No. 1,	- - 6 50	
" " 2,	- - 5 00	
" W. N. Clute,	- - 1 00	
	$16 00	
Amount on hand,	- - 3 00	
		$19 00

BULLETIN No. 3 costs $6.50, of which there has been received from the Treasurer $4.00, from the Secretary $1.00, and there remains $1.50 to be received from the Secretary.

Report of Elections.

Members entitled to vote as per Secretary's certificate, 24; Total number of members voting, 11.

For President: Willard N. Clute, 9; C. E. Waters, 1; B'ank, 1—11.

For Vice-President: Henry C. Cowles, 6; Geo. G. Hinsdale, 3; C. E. Waters, 1; Blank, 1—11.

For Secretary: Mrs. T. D. Dershimer, 7; Chas. L. Williams, 3; Henry C. Cowles, 1—11.

For Treasurer: James A. Graves, 7; Reuben M. Strong, 4—11.

Attest: Wm. P. Potter, Judge of Elections.

Notes.

Mr. C. K. Dodge, of Port Huron, Mich., has been admitted to the Chapter.

In future BULLETINS a page will be devoted to "Wants" and "Exchanges" relating to ferns. Members are requested to write such notices on a separate sheet of paper and to be as brief as possible

Some persons might find it a good plan to secure specimens of the rare ferns and offer them for sale. Many who have nothinge to exchange for them would be glad to buy them.

Mr. J. H. Lemon asks for directions for pressing and mounting ferns. What one of our older students will give us his metheds in an article of not more than 500 words.

Don't forget the Fern Allies this year. If you have not found and identified the Club mosses and Horse-tails you have missed making the acquaintance of several very interesting plants.

It has been suggested that the Chapter make a collection of ferns for the permanent museum of the Agassiz Association. This could easily be done by each member contributing one or more specimens, the younger members giving the common kinds and older ones the rarities. President Ballard writes that the Association has no collection of American ferns and would greatly value the proposed contribution. Before beginning the collec-

tion we should like to hear from members on the subject.

Mr. Geo. G. Hinslale, of Burlington, Vt., who has given considerable attention to the distribution of ferns, has consented to take charge of this part of the chapter's work. In future all fern-lists and other notes bearing on the subject should be sent to him. We hope to pubiish the results of his investigations in a separate BULLETIN and any aid the members may give him will be greatly appreciated

Exchanges and Wants.

I have specimens of Pellaea gracilis and P. atropurpurea Cystopteris bulbifera and Woodsia obtusa which I would gladly exchange for Aspleniums, Woodwardias or Cheilanthes.—MARY E. CARR, Adrian, Minn.

Wanted: Polypodium incanum, Aspidium lonchitis and fragrans, and Botrychium simplx and lunaria. Will give any plant from this locality in exchange.—WILLARD N. CLUTE, Binghamton, N. Y.

Transplant rare ferns into new and similar localities. Our rare ones will soon be extinct unless we do it. Who will send me roots next spring of any Cheilanthes, the Cryptogramme acrotich, Woodwardai angust, Asplenium pinnat, or montanum for this purpose I can I think give some of ours in return.—J. A. BATES, Randolph, Vt.

I have duplicates of the following species of Vermont ferns and fern-allies which I can now offer in exchange for species not in my collection. Lists of duplicates are solicited from those who may care to exchange : Pellaea atropurpurea, Asplenium viride, A. Ruta-muraria, Camptosorus rhizophyllus, Cystopteris bulbifera, Woodsia glabella, Lygodium palmatum (from Amherst, Mass.,) Lycopodium Selago, Selaginella rupestris, Isoetes echinospora var Braunii.—GEO. G. HINSDALE, Burlington, Vt.

I have the following unmounted specimens of ferns for exchange. Asplenium montanum. Camptosorus rhizophyllus. Aspidium spinulosum, Lygodium palmatum (no roots.) The Asplenium is from Rock Enon, Va., the Lygodium from Savannah, and the others from this vicinity. The specimen of Aspidium is a very perfect one except that the indusia have withered up in pressing. The plant was collected when the indusia were still green and there is no doubt about the identity of the plant. It is not one of the varieties, but the typical form. All the specimens of Camptosorus show the peculiar feature of the plant. The specimens are unmounted it being easier to send them by mail. I would like to exchange for any ferns not in my collection which includes nearly the entire list in the Science News for September.—C. E. WATERS, John Hopkins Union, Baltimore, Md.

BINGHAMTON, N. Y., JANUARY, 1894.

THE LINNAEAN

Fern Bulletin.

No. 4.

President—WILLARD N. CLUTE,
Binghamton, N. Y.
Vice-President—GEO. G. HINSDALE,
Burlington, Vt.
Secretary—MRS. T. D. DERSHIMER,
Squaretop, Wyo. Co., Pa.
Treasurer—JAMES A. GRAVES,
Susquehanna, Pa.

Aspidium Spinulosum and its Varieties.

Beginners, as well as more experienced fern collectors, often find it difficult to distinguish A. spinulosum from its varieties intermedium and dilatatum and call them all spinulosums as the easiest way to dispose of them. A. Boottii, which is about two-thirds

spinulosum and one-third cristatum, generally goes into the same batch, as a modified spinulosum. No genuine fern-lover, however, will feel satisfied with this lumping-off process. It makes the study of ferns far more interesting and profitable to be able to recognize the fine points that distinguish species and varieties. Ferns are exceedingly variable in their forms, mainly owing to the kinds and conditions of soil in which they are found, but cases in which they seem to run into each other may be the results of hybridization. In selecting specimens for the Herbarium, the typical form, as nearly as possible, should be chosen and when laid side by side the differences can be readily seen and there need be no confusion. I will briefly enumerate a few of the distinguishing points, which may be helpful to some beginner. If your fern is lance-ovate in outline and twice pinnatifid; the pinnæ oblique to the rachis, frequently nearly 45 degrees; with two or three of the lower pairs broadly triangular, those above more elongated; the pinnules also set oblique to the midril and connected with each other by a narrow wing; rather coarsely serrated or lobed, each lobe ending in a soft spinulose tooth; the margin of the indusium entire and smooth, you may safely call your specimen A. spintulosum. It is generally found in moist shady woods, in the northern states.

If your frond has a longer and broader ovate outline, and often thrice pinnate, the pinnæ rather distant on the rachis, the lower triangular, but unequally so; pinnules crowded, more finely toothed and lobed than above; the margin of the indusium jagged and beset with very small stalked glands (to see them plainly requires a glass magnifying twenty or thirty diameters. The sori that protrude from the edges of the indusium must not be mistaken for the glands,) it is very probable that your fern is the variety intermedium. It is very common in damp woods. If your specimen frond is broader at the base than either of the above, approaching triangular ovate, and nearly always thrice pinnatifid, the pinnules lance-oblong; the indusium entirely smooth and naked, it is pretty certain you have found the variety dilatatum. This form is not so frequently met with as the two above, and is generaliy found on mountains and elevated ground. A. Boottii has elongated lanceolate fronds, inclining to oblong in outline. It is thrice pinnatifid, the pinnules broad oblong, rounded at the ends, somewhat pinnatifid below and serrated above. The indusium is covered with minute glands which give it a rough appearance under the microscope. It is a northern fern and is found about ponds and wet places. I will be glad to help any mem-

ber of our chapter in doubtful cases of the above or any of our native ferns if they will send their specimens to me. — JAMES A. GRAVES, Susquehanna, Pa.

Secretary's Report.

Although many of the ferns are at present buried under the snow, or waiting beneath the brown earth for the sunbeams to waken them to new life, yet our Chapter is alive and growing, with, we hope, many years of profitable work before it. We have added eight new members, whose names and addresses are included in the list of members in good standing, published in this issue, and all but five of the original members have paid their dues. I have received $20.00 from members of the Chapter, which has been paid out as mentioned in BULLETIN No. 3, the balance, ($2.50) being turned over to the Treasurer. Most of our members have reported on their work done, and some have sent long and most instructive reports. To such we are indebted, and to the untiring exertions of our President, who has edited and attended to all the work of issuing the Bulletins. Many members have made exchanges of specimens, and this is one of the greatest advantages of our organization, the finding out of who has ferns to us unknown, and the certainty that

a request for the same will be honored by any member. Who that is a lover of ferns does not want to see, and if possible count among his possessions *all* the ferns? It is always a pleasure to meet people who have the same tastes and interests as ourselves, and an organization based on one of these tastes, affords opportunities of pleasant interchange of thoughts and fancies and observations. I have had many very interesting letters from members of whom I should know nothing but for this little Fern Chapter. I think we should try to grow better acquainted, and so get all we can from our bond of fellowship. —MRS. T. D. DERSHIMER, Secretary.

Changes in Nomenclature.

It is only very recently that the Botanists of America have settled upon anything like a definite code for the naming of plants. Frequent changing of scientific plant names by different Botanies has always been a source of perplexity to the younger students, and they will be glad that there is a prospect of such names being more stable in the future. In order to comply wtth the rules recently adopted, several changes have been made in fern nomenclature, which, through the kindness of Professor L. M. Underwood, we are able to give, thus bringing the subject up to

date. Polypodium incanum has become P. polypodioides. Cheilanthes vestita is changed to C. lanosa and C. lanuginosa is now C. gracilis. Asplenium ebeneum yields to the more difficult A. platyneuron and A. thelypteroides becomes A. acrostichoides. Woodwardia augustifolia takes the name of W. areolata. Woodsia hyperborea is W. alpina. Scolopodendrium vulgare is now S. scolopodendrium and Phegopteris polypodioides becomes P. phegopteris. The genus Aspidium has been changed to Dryopteris and the terminations of the species changed to the feminine The only species of Equisetum that has been changed, is E. limosum, which yields to E. fluviatile. A few other changes will doubtless be made, and these will be mentioned in a future *Bulletin*.—WILLARD N. CLUTE.

A Correction Corrected.

Will the President kindly give me space to correct a blunder that I made in BULLETIN No. 1? In that Bulletin I mentioned what I thought was a mistake in Prof. Underwood's book, "Our Native Ferns." It appears that I misunderstood the section marks, and there is no error in the book at that place. Every student of "Ferns and their Allies" should have Prof. Underwood's book. —CHARLES L. WILLIAMS, Glens Falls, N. Y.

——Every BULLETIN published mentions one or more new members added to the Chapter. Invite your friends to join us Miss Mary Church, Scranton, Pa., and Mr. E. Wilkinson, Mansfield, Ohio, were recently admitted.

——Beginning with this year an attempt will be made to mention, in the BULLETIN, all articles on ferns that appear in the various magazines and papers. Members are requested to send information of such articles to the President.

——Mr. C. E. Waters writes that part B. of Bull. 39 Smithsonian Institution, giving directions for collecting recent and fossil plants, may still be had upon application to that Institution. The publication is of much value to the collector of ferns.

——Mr. H. C. Cowles, having resigned from the Chapter leaving the office of Vice-President vacant, Mr. Geo. G. Hinsdale has been appointed to that office. Mr. Hinsdale is one of our most active members and received the second highest number of votes for Vice-President at the recent election.

—The report of Mr. C. E. Waters, on "Distinguishing Characteristics of Closely Resembling Ferns" is being circulated through the western half of the Chapter followed closely by Mr. Bates's report on "Methods for Beginners in Fern Study." Mr. Gardner C.

Teal, also, has in preparation a set of fern drawings that will soon be circulated.

——Several members have responded to the request for notes on collecting, pressing and mounting ferns and it is intended to include all these notes into one leading article for the next BULLETIN. Will those members who have had experience in gathering ferns, please send us additional notes so that the article may be made as helpful as possible?

——It is proposed that the Constitution be so amended as to admit of a class of Associate Members being added to the Chapter. These would pay 50 cents yearly, receive all our publications, and be entitled to one exchange notice yearly in the BULLETIN but could not vote, hold office, publish in the Bulletin, or receive the circulated reports. Send negative votes to the Secretary.

——The amendment to the Constitution, making dues payable to the Treasurer was passed unanimously and in future all dues should be sent to Mr. James A. Graves, Susquehanna, Pa. The annual dues are payable in March, and it is hoped that members will be prompt in responding, since on this depends the issuing of future BULLETINS. Everything indicates that the coming season will be a very successful one.

Binghamton, New York, March, 1894.

LINNAEAN FERN BULLETIN

[VOL. II]

(NOS. 5-8)

1894-1895

Mo. Bot. Garden,
1898.

THE LINNÆAN

Fern Bulletin,

No. 5.

President—WILLARD N. CLUTE,
Binghamton, N. Y.
Vice-President—GEO. G. HINSDALE,
Burlington, Vt.
Secretary—MRS. T. D. DERSHIMER,
Squaretop, Wyo. Co., Pa.
Treasurer—JAMES A. GRAVES,
Susquehanna, Pa.

CONSTITUTION

OF THE

LINNÆAN FERN CHAPTER.

ARTICLE I.—NAME.

SECTION 1. **The name of this Society shall be The Linnæan Fern Chapter of the Agassiz Association.**

ARTICLE II.—OBJECT.

SECTION 1. The objects of this Chapter shall be the study of ferns by correspondence, the exchange of specimens, and the publication of the knowledge obtained.

ARTICLE III.—MEMBERSHIP.

SECTION 1. Any student of ferns in North America is eligible to membership in this Chapter.

SEC. 2. The membership shall consist of Active and Associate members. They may be admitted in January, April, July and October of each year.

Sec. 3. Applications for membership must be made to the Secretary, who shall give notice to all members in good standing of such application and request a vote thereon. Two adverse ballots shall exclude.

SEC. 4. The regular yearly dues shall be one dollar for Active members, and fifty cents for Associates, payable on the first of that quarter in which the member was admitted.

SEC. 5. Members six months in arrears for dues shall be suspended, provided they have twice been notified of their indebtedness by the Secretary.

Sec. 6. No Active member in arrears for dues shall vote, hold office or receive the publications of the Chapter.

SEC. 7. Associate members shall be entitled to a copy of all Chapter publications but shall not vote or hold office.

ARTICLE IV.—STUDY.

SECTION 1. On the first day of every quarter each Active member shall send a report of his progress to the President, who shall make such reports known to the Chapter in any manner the Executive Council may direct.

ARTICLE V.—OFFICERS.

SECTION 1.—The officers of the Chapter shall be a President, Vice-President, Secretary and Treasurer.

SEC. 2. Their term of office shall begin on the first of January and last for one year or until their successors are elected.

SEC. 3. The President shall have charge of the Chapter, direct the work, appoint the committees, and shall appoint persons to fill all offices that become vacant, till an election is held. He shall make an annual statement of all his acts as President of the Chapter and shall perform such other duties as shall be required of him by the Chapter.

SEC. 4. The Vice-President shall act in the absence of the President.

SEC. 5. The Secretary shall keep a record of all business done by the Chapter. He shall

prepare all reports for publication as directed by the Executive Council. He shall make an annual statement to the Chapter and shall sign all documents requiring his signature.

SEC. 6. The Treasurer shall receive and hold all monies belonging to the Chapter, subject to the order of the Executive Council, signed by the Secretary. He shall make an annual report to the Chapter of all monies received and paid out, and at the end of his term of office he shall deliver to his successor all monies, etc., belonging to the Chapter.

ARTICLE VI.—EXECUTIVE COUNCIL.

SECTION 1. The President, Secretary, Vice-President and Treasurer shall constitute a committee known as the Executive Council.

SEC. 2. The Council shall have general supervision of the Chapter; shall decide how and when the reports shall be published; shall act on all motions and petitions not requiring a vote of the whole Chapter; shall have power to expend the Chapter's money in furthering its business; and shall perform such other duties as are required of them in this Constitution.

ARTICLE VII.—ELECTIONS.

SECTION 1. The Executive Council shall nominate two candidates for each office not

later than October 1st of each year and shall notify all members in good standing of the nominations. This shall not prevent members from nominating or voting for any eligible member not regularly nominated.

SEC. 2. The President shall appoint as Judge of Election any Active member in good standing, not a candidate for office, to whom all votes shall be sent.

Sec. 3. Within three days after election the Judge of Election shall forward to the Secretary a true statement of the ballots cast and the original ballots. If found to be correct the Secretary shall sign the statement and notify the officers of their election.

SEC. 4. Balloting shall begin on October 1st and end November 1st of each year. Only a majority vote shall elect. In cases where more than two candidates are nominated for the same office and none receive a majority vote the Council shall elect one of the two candidates having the largest number of votes.

ARTICLE VIII.—EXPULSIONS.

SECTION 1. The Executive Council shall have power to expel any member who proves unworthy of membership, and such expulsion can only be overruled by a two-thirds vote of all the members in good standing.

ARTICLE IX.—AMENDMENTS.

SECTION 1. Amendments to this Constitution must be presented to the Executive Council in writing and signed by three Active members. It shall require a two-thirds vote of the Chapter to adopt it.

To Lovers of Ferns.

The Linnaean Fern Chapter is no longer an experiment; it is a success. The record of its single season's work has shown the many advantages of such a society and every fern-lover should be included in its membership. Not only students, collectors and cultivators of ferns are admitted, but those who are beginners, or who would like to take up the study, are cordially welcome. The chapter was started with the idea of awakening a wider interest in, as well as a deeper study of, this most interesting and beautiful part of the plant-world. No one who wishes to know the ferns and their allies need be hindered by any apparent difficulties in the way of identification, for any good Botany makes the task an easy one. The Chapter aims at being a working one—for the study of ferns, not the mere identifying of them. Members are not required to report but are expected to do so when possible. These reports and notes

are published in the FERN BULLETIN or circulated from member to member. In this way a great deal of valuable information is gained each year. To the beginner the Chapter offers aid in the collection, identification and preservation of ferns; to the older student, the means of corresponding and exchanging with other students of this fascinating subject; and to all the opportunities of publishing the results of their investigations. Everyone interested in ferns is earnestly invited to join the Chapter. Applications for membership should be made to the Secretary.

On Pellæa Atropurpurea.

A friend told me of a new fern he had seen while crossing a certain farm in quest of a rare bird. The new fern turned out to be Pellæa atropurpurea: quite a find, although about six or seven plants were known of in our vicinity before the discovery of this new spot where a bushel might have been collected. One frond was 18 inches long, and several were from 15 to 17 inches. The largest one was a fertile frond, and the smallest one bearing sporangia was simply a hastate froud, the leaf part being about three-fourths of an inch in length. The fertile fronds are larger than the sterile, the largest of the latter being about 9 or 10 inches tall. This fern shows the greatest tendency to variation. Some

fronds are simply pinnate, some bi-pinnate (below.) Others are bi-pinnatifid, or rather pinnate with tremendous auricles at one or both sides of the bases of the pinnae. Sometimes in place of one of the auricles there will be a pinnule. Then the individual pinnae will be forked at the tip into one or two or as many as four or five lobes and at times these lobes are incised at the apex. Frequently a pinna will have a lobe sticking out at one side nearly midway between the tip and base, or indeed anywhere along the edge of the pinna, it is quite usual to find them. Every lobe however small has its own separate mid-vein. It is hard to find a frond that has developed symmetrically.-C. E. WATERS, Baltimore, Md.

[In a later note, Mr. Waters, who has visited the Pellæas late in March, remarks: The ferns were still quite green although brown spots and streaks were to be observed on the pinnae. They seem to begin turning brown at each side of the midrib. The most fertile fronds turning brown the soonest. Although we can find some perfectly sterile fronds, still the tendency seems to be for all the fronds to bear some sporangia. The sterile fronds have pinnae broader in proportion to their length than those of the fertile ones, and they are usually, if not always, smaller,

and are quite distinct in appearance. I have found that even on these apparently sterile fronds there are usually sporangia, possibly on but a few pinnae, but there, nevertheless. This tendency to produce spores is strikingly shown in a small plant not more than three-fourths of an inch tall, but well provided with sporangia. I think we can well consider Pellæa atropurpurea as one of our most interesting ferns. Judging from specimens obtained from Iowa, there seems to be the same gradation between the sterile and fertile fronds in P. gracilis as in P. atropurpurea. For species in different sub-genera there is the most striking resemblance between these two, as far as form is concerned.]

Vermont Ferns.

I was one of the two who found Aspidium fragrans on Mt. Mansfield and I think we shook hands over our first specimen with as much enthusiasm as Mr. Bates shouted "Hurrah!" when he found Woodwardia Virginica. That was a "red letter day" for us. On that day we collected Aspidium fragrans, Woodsia hyperborea, W. glabella, W. Ilvensis Asplenium viride, Pellea gracilis, and Aspidium aculeatum, var Braunii, I have collected specimens of Aspidium acrostichoides in Vt., that I have called var. incisum. If not the variety they are at least half

way from type to variety. I was made very happy a few days ago by the receipt of a specimen of Asplenium trichomanes, var incisum from Brattleboro, Vt. This has been collected in Vt. only once and the specimen I have was studied by Mr. C. C. Frost. I think I value that little frond more than any other 10 specimens in all my collection of over 2,000 species. Specimens of Aspidium marginale with tripinnatifid fronds were collected in '93 by Mr. C. E. Stevens at the Colchester locality for Woodwardia Virginica. Mr. Underwood tells me that he never saw a similar developement before, so I consider my specimen a rarity. I have 67 of our N. A. ferns and about 15 of the allies. I want to get a complete collection and hope the Southern and Western members of the Chapter will be able to add many to my list by exchange.—A. J. GROUT, Johnson, Vt.

Notes.

——Look out for Clubmosses, Selaginellas and Horsetails this year.

——"Nature made ferns for pure leaves to show what she could do in that line."—Thoreau.

——The price for a complete set of the BULLETIN is now twenty-five cents. Less than twenty full sets remain. A few copies of Nos.

1 and 2 may still be had free, upon application.

——Two members in this issue ask for southern and western ferns. The Chapter should have members in those sections. Who can secure them for us?

——A series of sixteen drawings, illustrating various forms of foliage in Pellæa atropurpurea, accompany Mr. Waters' report on the subject. Any member who wishes to see them should address the President.

——And still the Chapter grows. Three new members have been added since the last BULLETIN was issued. These are Mrs. E. E. Luquer, Bedford, N. Y.. Mr. A. J. Grout, Johnson, Vt., and Mr. H. Murray Tinges, Baltimore, Md.

——Mr. Gardner C. Teall suggests that when a report is passing from member to member, that each add to the report any notes he may have on the subject. It is a good idea. Mr. Teall adds the following to Mr. Bates' report. "Aspidium fragrans, referred to in this report, may be found in Duluth, Minn., though there is but little of it. I shall esteem it a favor if any of our western members will let me know if it grows in their locality."

——The amendment to the Constitution, allowing of a class of Associate members, has

been passed and we are ready to receive such members. It is very much desired that every person interested in ferns should take an active interest in the Chapter, but if any are too busy or not enough interested in ferns to become Active members, we shall be glad to receive them as Associates. Every member of our Chapter should be able to add several Associates to our list. Speak to those persons who are interested in ferns, or send them a BULLETIN.

Wanted.—Southern and western ferns, I have a few specimens of Woodsia hyperborea and Aspidium fragrans to exchange for rare ferns only. Also Asplenium ruta-muraria, A. viride, Woodsia glabella, Pellæa gracilis, Woodwardia virginica and nearly all the common ferns of New England. Write for list.—A. J. GROUT, Johnson, Vt.

For Exchange.—Stems of Equisetum hyemale having branches bearing fertile spikes. Also Lygodium palmatum, Camptosorus rhizophyllus, Pellæa atropurpura, Cheilanthes vestita, Aspidium cristatum and Lycopodium lucidulum. I want southern and western ferns, but will accept other ferns I do not possess.—C. E. WATERS, Johns Hopkins Univ., Baltimore, Md.

THE LINNÆAN

Fern Bulletin.

No. 6.

President—WILLARD N. CLUTE,
Binghamton, N. Y.

Vice-President—GEO. G. HINSDALE,
Burlington, Vt.

Secretary—MRS. T. D. DERSHIMER,
Squaretop, Wyo. Co., Pa.

Treasurer—JAMES A. GRAVES,
Susquehanna, Pa.

Equisetum Hyemale.

Summer does not reach us before June 21, although Equisetum hyemale seems to think that the solstice is on March 23, if we can judge from its fruit. Or perhaps "Gray's Manual" and "Our Native Ferns" do not know how to name the seasons when they say of this species "fruiting in summer." I have always found the fertile "knobs" all through the winter. In the early spring the spores are discharged, quite as early, if not earlier, than those of E. arvense, which

"fruits" in spring." The spores were perfect, for I have already some young prothallia from them (April 2) simply by sowing them on moist sand in a covered tumbler. At my favorite colony of E. hyemale, the plants seem to have a great tendency to develope slender branches, usually near the top of the stems. Many of these branches bear fertile spikes which are rarely as large as peas.—C. E. WATERS, Baltimore, Md.

Forking Fronds.

Such of our members as have found forking fronds of various species of ferns will be interested in the following from Prof. Underwood's "Our Native Ferns." We shall be glad to publish notes on this subject. "Another tendency to variation is noticed in the forking of fronds, either at the summit or at the ends of the branches. The hart's-tongue (Scolopendrium) is frequently forked at the summit, the walking leaf (Camptosorus) less commonly, while the same tendency is noticed in various compound forms as Asplenium augustifolium, Cheilanthes vestita, Dicksonia, Pellæa atropurpurea and others. Some of the species of Botrychium show this tendency especially in their fertile segments. It is probable that all our species will be found to fork under certain conditions. More defi-

nite information is desirable with regard to many species that show this tendency, as it doubtless involves the question of the ancestry of existing ferns."

A New Fern List.

All fern lovers who object to the time and labor involved in writing the long scientific names of ferns, will welcome a plan by which much of this may be avoided. It is proposed to publish a list of all North American ferns and their allies numbered in consecutive order, so that in mentioning numerous ferns the number may be used instead of the names. This list, which will occupy about as much space as a single FERN BULLETIN, will save much time in correspondence and exchanging. It will doubtless be printed on only one side of the page to admit of the list being cut up for labels or the blank pages used for notes, etc. The cost of publication will be about five dollars. All members who are interested in the scheme are invited to aid in defraying this expense. Except a few copies presented to the Chapter, the entire edition will be divided equally among those who aid in publishing it, to be disposed of as they choose. Several members have signified their intention of contributing and if ten join in the work it will cost each less than fifty cents.

Write at once to Mr. Jas. A. Graves, Susquehanna, Pa., who has the matter in charge.

Notice to Members.

As no BULLETINS have been issued since early summer, it may be surmised that interest in the Chapter may be declining but such is far from being the case. Most of us have been too busy in the field to do much writing, but now that the cool autumn evenings are approaching, we shall again betake ourselves to books and herbarium. Full note-books will furnish material for frequent BULLETINS and the coming season promises much in the way of fern-study. It is earnestly desired that we retain every one of our thirty-four members, but there are a few whose dues are still unpaid. If this paragraph is marked, you are among the number. Will you not remit at once to the Treasurer? We need your assistance to make our Chapter a success, and you need the co-operation of just such a company of fern students.

Ferns Wanted.

We now have a chance to show our Chapter's usefulness. Mr. Alex E. Wight, of Wellesley Hills, Mass., who is preparing several courses in Botany for the Agassiz Association desires one hundred and twelve

specimens of some species of Botrychium to illustrate his course in Vascular Acrogens. Although the season for collecting these in fruit is nearly past, it is hoped that our members will be able to help Mr. Wight in this matter. Those who can furnish several pressed specimens, showing fruiting and sterile fronds are invited to write to him. All will be glad of this opportunity to aid in advancing our favorite study.

Ferns for the A. A.

The proposal to make a collection of ferns for the permanent museum of the Agassiz Association has been received with much favor. Mr. Geo. G. Hinsdale of Burlington, Vt., has generously offered to undertake the work of mounting and labeling the specimens. Send him a list of ferns on a postal card from which to select, and he will inform you which one is most desired. Let every member contribute at least one specimen. Remember that specimens of even the commonest ferns are wanted.

Obituary.

We are sorry to announce the death of Mrs. E. E. Luquer of Bedford, N. Y., which occurred on April 22, 1894. Mrs. Luquer had

been an invalid for several years, but her health had recently been improving, and her sudden death was a great shock. She had long been a lover of Botany, was a member of the Gray Botanical Chapter, and but a few weeks before her death joined the Fern Chapter in order to help some of her friends in this study. Mrs. Luquer's daughter requests that her mother's membership be given to one of these friends, Miss Catherine M. Bates of Bedford, N. Y., which has accordingly been done.

An Explanation.

A member writes to inquire why new members are admitted at any time and why all members are not notified and required to vote on their admission? The answer is this. To notify all members it would require the Secretary to write more than thirty personal letters each time, and this expense would have to be borne by the Chapter. Our dues are so low that this extra cost would mean the publishing of fewer BULLETINS and it has therefore seemed best to admit new members as fast as applications are made, and save the expense of notifying others. Unless the Chapter objects this method will be continued. Opinions on the subject are requested.

Notes.

——A few sets of the BULLETIN may still be had for 25 cents a set.

——Will the member who has Mr. Bates' report on "How to Study the Ferns," please notify the President at once?

——Mr. C. E. Waters writes that the rare fern, Asplenium Bradleyi, has been found recently in the vicinity of Baltimore.

——Mr. James A. Graves reports Woodwardia Virginica as a new find in his vicinity –Susquehanna, Pa.

——Members who have never sent in a report are earnestly invited to do so. Let us publish your interesting notes even if they are but a few lines in length. Do not let a few members do all the writing.

——Six BULLETINS have been issued and every one mentions one or more members added to the Chapter. May there never come an issue that does not have this story to tell. What have you done to help us?

—— Members having access to a greenhouse will find much of interest in studying the various exotic ferns. The greatest difficulty will be found in naming the specimens. Dealers' names can hardly be relied upon.

——A fine series of over forty drawings of ferns and fern-allies illustrating several exotic genera as well as our native ones has recently been started through the Eastern half of the Chapter. They are the work of Mr. Gardner C. Teall, Eau Claire, Wis.

——Again we record additions to our Chapter. Miss Dora A. Radlo, North Adams, Mass.; Mr. C. D. McLouth, Muskegon, Mich.; and Mr. G. F. Curtis, Boston, Mass.; have joined since the last BULLETIN was issued. We take pleasure in welcoming them to the Chapter.

——The next issue will contain the names of those nominated for office in the Chapter during the coming year. If you have any nominations to suggest, write to one of the present officers. With that issue will also be sent a revised list of all members in good standing.

——According to the report of the State Botanist, the rare variety, Cristatum, of Polypodium vulgare has been found in Dutchess Co., N. Y. This fern was first discovered in Ireland, and differs from the ordinary form in having the ends of the segments beautifully lobed and crested. Fern lovers should be on the look-out for it.

Binghamton, N. Y., August, 1894.

THE LINNÆAN

Fern Bulletin.

No. 7.

President—WILLARD N. CLUTE,
Binghamton, N. Y.

Vice-President—C. E. WATERS,
Baltimore, Md.

Secretary—Mrs. T. D. DERSHIMER,
Squaretop, Wyo. Co., Pa.

Treasurer—JAMES A. GRAVES,
Susquehanna, Pa.

Camptosorus Rhizophyllus.

Lewistown being a new place to me last year I started out to see what I could find in the woods in the neighborhood. I went off up the hill west of the town, and before reaching the top which is known as Prospect Rock, I turned off into the path leading to Rocky Woods, at the base of Prospect, suddenly, on the limestone rocks I came across a bed of Camptosorus rhizophyllus, being the first I

had ever seen, I examined it closely and found fronds of all sizes, some apparently being just ready to take a step. This season I went up again and was delighted to find one or two specimens the ends of which had taken root. In these woods I found many rocks covered more or less with the walking fern. I brought some specimens home to see if I could not get it to grow in my fern corner, but all attempts so far has proved failures. Has any one who has transplanted it succeeded in making it grow? On one of my trips to Prospect I found a frond of Camptosorus Rhizophyllus which measures 3¾ inches from ear to ear and 12⅝ inches long including the stem of 4½ inches. Another measured 16 inches in length. Can any one do better? I can get nice specimens of it for exchange, also of Asplenium Ebeneum and A. trichomanes, Adiatum, Struthiopteris and Polypodium Vulgare, but I suppose they are so common every one has them. — ELMIRA E. NOYES, Lewiston Pa.

[Camptosorus can be made to grow in any shady locality if the proper surroundings are given it. Plant it in soil taken from its home or in place of this good earth from the woods. The plants love limestone, therefore form the bottom of the bed of limestone chips or even broken clam-shells.]

Ferns for Winter.

Some ferns grow much better in ferneries than others and it is well to have this in mind when selecting ferns for that purpose. Of all our native ferns there are probably none that respond so readily to this method of growing as the common polypody and the beech and oak ferns. They often grow so luxuriantly that the older fronds have to be cut away to make room for the new growth. Plant these by all means. The curious little walking leaf is always an object of interest and one of the best ferns for indoor culture. Of the spleenworts, the ebony and maidenhair spleenworts are very fine and grow rapidly. The circular tufts of the latter are just the thing for minature rockeries. Small plants of Aspidium cristatum, marginale, spinulosum and acrostichoides can be recommended and the two species of Cystopteris should not be forgotten. The common maidenhair ultimately sends up an abundance of fronds but requires some time to get started. Many species of our common ferns grow too tall and rank for the fernery, unless it happens to be a large one, but if one can secure a tiny specimen of some of these they are very pretty—none show a greater contrast than the broad fronds of Onoclea sensibilis among the much-divided foliage of the other species.

The New Fern List.

The project of a new Fern list has met with decided favor and eight of the ten members desired, have signified their willingness to aid in the work. The cost to each will be about fifty cents. In return he will get fifty copies of the list. This will be printed in attractive shape, on heavy paper, and will contain the names of all North American Ferns and Fern Allies according to the latest scientific nomenclature. It will be useful in many ways, every other page will be blank, for notes, and will make a very handy checking list for a collection of ferns. Publication will be begun as soon as two more members are secured. Who will aid us? Mr. Jas. A. Graves has the matter in charge.

The Fernery.

The true fern student does not cease his labors just because the frosts of Autumn have killed most of his plants afield, but at this time of the year will be found constructing a Wardian Case or "fernery." These cases may be had, ready-made, at various prices, but anyone can make one with little expense. Get a pan or box of sufficient depth to hold the soil for the plants and four lights of glass to form the sides and ends of your fernery. These should be high enough (nine to twelve

inches to give the ferns plenty of room to grow upright. With strong strips of cloth and liquid glue fasten the ends of your glasses together and with another light of glass for the top, you will have a glass box, the bottom edges of which should fit inside the pan and rest upon the soil. The fernery is now complete. Put in soil enough to hold the ferns and plant what you please. The top glass should not be fastened to the sides and ends as it will be necessary to remove it occasionally to water the ferns, set out new ones, or for ventilation. Place the fernery where it will have light but not sunlight, and a fair degree of warmth, and all winter long frond after frond will uncoil affording excellent opportunities for study and enjoyment.

Notice of Election.

As required by the Constitution the Executive Council has nominated two candidates for each office in the Chapter for the year 1895. It should be understood, however, that these nominations are merely suggestions and members may vote for any member in good standing not regularly nominated.

Mrs. M. L. Stevens, 6 Holyoke Place, Cambridge, Mass., has been appointed Judge of Elections and to her all ballots should be sent.

The voting ends on Nov. 20th, and only Active members in good standing can vote.

Following is the list of candidates :

For President : Jas. A. Bates, Randolph, Vt. ; Willard N. Clute, Binghamton, N. Y.

For Vice-President : Mrs. T. D. Dershimer, Squaretop, Pa ; Jas. A. Lemon, Toronto, Canada.

For Secretary : C. E. Waters, Baltimore, Md. ; A. J. Grout, Johnson, Vt.

For Treasurer : Jas. A. Graves, Susquehanna, Pa.; Wm. P. Potter, Norwich, Conn.

A Notice.

Some of our members having decided to drop out of the Chapter, it becomes necessary to issue a revised list of members in good standing. While we regret that any names must be taken from the list, we are glad that the number is so small. We are very sorry to part with a single member and suggest to those who have withdrawn that if they have not time for Active membership that they become Associates. This costs but 50 cents a year and entitles such members to all publications of the Chapter. This is the last BULLETIN that members not in good standing receive. If you decide to continue with us, remit your dues to the treasurer who will give you a certificate entitling you to vote at this election.

Notes.

——Mr. Robt. L. Sherrard, Galveston, Tex., has been admitted to the Chapter.

——Mr. Waters' drawings of "Abnormalities of Pellæa atropurpurea" may again be had for the asking.

——Some of our members complain that correspondents are occasionally very slow in sending exchanges. Do not delay in matters of this kind.

——Of all the reports sent out to be circulated through the Chapter, only one has ever returned. Since this method of publication cannot be depended upon, it has been decided to discontinue it.

——Mr. Geo. G. Hinsdale having resigned from the Chapter, Mr. C. E. Waters has been appointed to fill the vacant office of Vice-President. Mr. Waters frequent contributions to the BULLETIN have made him too well known in the Chapter to require further introduction.

—— Those who have not full sets of the FERN BULLETIN should lose no time in securing them. Less than fifteen full sets remain and when these are gone no more can be had. Until the next BULLETIN is issued full sets will cost 25 cents; with No. 8, the price will be raised.

While members may be admitted to the Chapter at any time, a slight change in the method of paying dues has been adopted. It is desired that all dues shall fall due on Jan. 1st, and therefore new members admitted after April 1st, will pay 75 cents for the remainder of the year; those admitted after July 1st, will pay 50 cents; and those who join after October 1st, will pay 25 cents. Old members not in good standing who were admitted after April can pay up their dues to Jan. 1st, 1895, for $1.75: admitted after July, $1.50; October, $1.25. Members in good standing, can upon payment of like sums, have their membership set forward to Jan. 1, 1897.

With this BULLETIN all members in good standing will receive the revised list of members. To the printed list should be added the following: Geo. F. Curtiss, 58 Chandler St., Boston, Mass.; Miss Catherine M. Bates, Bedford, N. Y.; A. J. Grout, Johnson, Vt.; C. D. McLouth, Muskegon, Mich.; H. M. Tinges, Baltimore, Md.; Miss Dora A. Radlo, North Adams, Mass.; Robt. L. Sherrard, Galveston, Texas; Mr. J. Lemon's address has been changed to 80 Borden St., Toronto; Mrs. A. D. Dean's to 329 Washington Ave., Scranton, and Miss F. S. Beane's to Littleton, N. H.

Binghamton, New York, October, 1894.

THE LINNÆAN

Fern Bulletin.

No. 8.

President—WILLARD N. CLUTE,
Binghamton, N. Y.
Vice-President—Mrs. T. D. DERSHIMER,
Squaretop, Pa.
Secretary—C. E. WATERS,
Johns Hopkins Univ., Baltimore, Md.
Treasurer—JAMES A. GRAVES,
Susquehanna, Pa.

Pennsylvania Ferns.

I am so much interested in the Fern Bulletins that I want to say just a word. I have discovered some ferns, new to me, in this locality this summer. I suppose they have been growing there all the time, for no knowing how many years, but this only proves how being a member of the Chapter sharpens one's eyes. I have found the oak and the

beech ferns—to say nothing of the lovely blood-root—growing almost at my very door. Also the dear little Polypodium vulgare. It is a little hard on us who are as infants in the study for the authorities to go to changing names, when we are just getting equal to handling a few of the old ones with ease.—MRS. A. D. DEAN, Scranton, Pa.

The Walking Fern.

I have had a little experience in raising the walking fern. Two years ago a friend gave me two plants that were sent here from Virginia. I set them into mould from the woods, and they took to their new quarters without any objection, making a good growth and rooting from three fronds. When freezing weather came I put them in the cellar and let them stay there until the next spring, when I set them out in flower pots very carefully, coaxing them all I could to grow. But they would only put out a few stunted leaves. Then I dumped them down under the back steps and did nothing more with them except to keep them wet. Like most other wild things they behaved better when out of sight and not fussed with. They made a good growth, sending some fronds over the tops of the jars and taking root nicely. The baby

ferns have two or three leaves each. They are now frozen up, and I shall cover them five or six inches deep with leaves and let them stay where they are until spring, hoping that they will be able to endure a northern New York winter without harm.—CHARLES L. WILLIAMS, Glens Falls, N. Y.

[Probably in their last position the ferns got what they needed most—shade. Few ferns love the shade more than Camptosorus.]

The Fern List Again.

In a recent letter Prof. Underwood says:—"I note in your recent Bulletin that a new check-list is in preparation and I am glad that this is the case." It can now be definitely stated that the list will appear early in February. It will be issued as "Special Bulletin No. 9," and be even better than former notices have promised. It will give the names of all the ferns and fern-allies north of Mexico, numbered in consecutive order. It will give the orders, sub-orders, tribes and genera into which these plants are divided, it will give the Geographical range of each species and contain blank pages for making notes. It cannot fail to become an invaluable working manual for the student of ferns. More than the required nmmber of members have

already paid their share in this undertaking, but until the fifteenth of February there is an opportunity for anyone, member or otherwise, to aid in the work, the extra money going to make the list better. The names of all contirbutors will be published in the list and each will receive fifty copies of it. But few copies will be reserved for sale. Fifty cents sent to Mr. Jas. A. Graves, Susquehanna, Pa., will ensure the sender's name being placed upon the roll and fifty copies sent him.

Ferns Given Away.

"Help one another" might well be taken for the motto of our Chapter. Beginning with the new year, we take another step in this direction by offering various ferns free to members. Several members have signified their willingness to present ferns to the Chapter, and thus this plan has been suggested. When a member has at least a dozen ferns of one kind that he desires to present to the Chapter, he is requested to forward them to the President who will mention, in the next Bulletin, what ferns are offered. Any Active member can then secure specimens of these by sending two 2-cent stamps (for postage) for each specimen desired. Associate members must send four stamps for each specimen

wanted. Only one specimen of a kind will be allowed to any member. The object in sending all ferns to the President, is to admit of more than one specimen being sent in a package when several are desired; and also to save postage, all excess of which will be turned into the Chapter treasury. Through the generosity of Messrs. Curtiss and Waters. we are able to start the movement by offering two very interesting plants. The first is Adiantum tenerum, collected in the Island of Jamaica by Mr. Curtiss, the other is the rare Club-moss—Lycopodium inundatum var. Bigelovii—which Mr. Waters has discovered in the vicinity of Baltimore. As there are but a dozen fronds of each. members must be quick in sending their stamps if they wish specimens. Address all correspondence on this subject to the President.

President's Report.

FELLOW MEMBERS.—Another season of fern-study has passed and the new year finds the "LINNÆAN FERN CHAPTER" alive and prospering. Our membership is greater than it was last year and the Treasurer's books show a balance in our favor. During the year a clause was added to our Constitution providing for a class of members known as As-

sociates, and it is a significant fact that less than ten per cent. of our members have availed themselves of it, the rest prefering to remain Active. There is a pleasure about the study of ferns that one who has once begun it is slow to forget. Our Chapter numbers among its members several whose collections embrace most of the North American ferns, and at the other end of the scale we have beginners who have identified scarcely twenty species. One member has to travel twelve miles to collect the single species that grows in her vicinity, while other members have added upwards of fifty different species to their collections within the year. As the re-results of our season's work, the Chapter has published five Bulletins and made preparations for the publication of a more important work, the check-list of the ferns and fern-allies north of Mexico, the copy for which is nearly ready for the printer. In the desire to make the Chapter of greater usefulness, numerous rare ferns will be given away this season, enabling all to secure many species which they could not collect themselves. Since the "fern-allies" — the Club-mosses, Scouring-rushes, etc., have been included in our work, there has been a growing tendency to collect and study these plants also. Beginners will

find them as beautiful and interesting as the ferns. In conclusion it may be mentioned, that there is one thing lacking to make our Chapter as helpful as it should be, and that is frequent notes from members. It is not necessary that long articles be sent, but if members would send us their interesting notes for publication, subsequent Bulletins would be made more valuable. I thank you for the honor of a re-election to the Presidency, and wish you a most successful New Year.
—WILLARD N. CLUTE, Binghamton, N. Y.

Treasurer's Report.

By balance rec'd from Secretary.....	$2.50
" dues of 22 Active members,.....	22.00
" " " 1 Associate "	.50
" sale of Bulletins, ...	.60
	$25.60

To Bulletin No. 4,.....	$4.50	
" List of Members,.....	.75	
" Bulletin No. 5, ...	6.75	
" " " 6, ...	4.75	
" " " 7, ...	4.75	
	$21.50	
Cash on hand,.....	4.10	
		$25.60

JAS. A. GRAVES, Treasurer.

Secretary's Report.

During the year the Chapter has adden ten new names to our list of members. We have lost seven members through non-payment of dues and one by death. Our total membership is now twenty-four Active and two Associate. Five Bulletins have been puplished and much correspondence and exchanging have been carried on by the members. Two amendments to the Constitution have been made, one making all dues payable to the Treasurer, the other admitting of a class of Associate members —MRS. T. D. DERSHIMER, Sec., Squaretop, Pa.

Report of Elections.

Whole number of ballots cast, 13.

For President, Willard N. Clute 12; Jas. A. Bates 1,—13.

For Vice-President Mrs. T. D. Dershimer, 10; Jas. A. Lemon, 2; Jas. A. Bates, 1,—13.

For Secretary, C. E. Waters 9; A. J. Grout 3; Mrs. T. D. Dershimer 1,—13.

For Treasurer, Jas. A. Graves, 11; Wm. P. Potter, 2,—13.

MRS. M. L. STEVENS, Judge of Elections.

Since the last BULLETIN was issued Mr. A. T. Beals, of Greenfield, Mass., has been admitted to the Chapter.

[1895]